

CLAIMS

1. A high-strength thick steel plate excellent in low temperature toughness at heat affected zone resulting from large heat input welding, characterized by  
5 containing, by wt%,

C: 0.03-0.14%,  
Si: 0.30% or less,  
Mn: 0.8-2.0%,  
P: 0.02% or less,  
10 S: 0.005% or less,  
Al: 0.001-0.040%,  
N: 0.0010-0.0100%,  
Ni: 0.8-4.0%,  
Ti: 0.005-0.030%, and  
15 Nb: 0.003-0.040%,

where Ni and Mn satisfy equation [1], and the balance of iron and unavoidable impurities:

$$\text{Ni/Mn} \geq 10 \times \text{Ceq} - 3 \quad (0.36 < \text{Ceq} < 0.42) \quad [1]$$

where,  $\text{Ceq} = \text{C} + \text{Mn}/6 + (\text{Cr} + \text{Mo} + \text{V})/5 + (\text{Ni} + \text{Cu})/15$

20 2. A high-strength thick steel plate excellent in low temperature toughness at heat affected zone resulting from large heat input welding according to claim 1, characterized by further containing, by wt%,

one or more of:  
25 Ca: 0.0003-0.0050%,  
Mg: 0.0003-0.0050%, and  
REM: 0.001-0.030% and

contains at least 100/mm<sup>2</sup> of oxide particles containing

O: 0.0010-0.0050%

30 and having a equivalent circle diameter of 0.005 to 0.5  $\mu\text{m}$ .

3. A high-strength thick steel plate excellent in low temperature toughness at heat affected zone resulting from large heat input welding according to claim 1 or 2,  
35 characterized by further containing, by wt%,

B: 0.0005-0.0050%.

4. A high-strength thick steel plate excellent in

low temperature toughness at heat affected zone resulting from large heat input welding according to any one of claims 1 to 3, characterized by further containing, by wt%,

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one or more of:

Cr: 0.1-0.5%,

Mo: 0.01-0.5%,

V: 0.005-0.10%, and

Cu: 0.1-1.0%.